

IN THE CLAIMS

Please cancel Claim 5, replace pending claims 1-4 and 6-9 with the following amended claims, and add new claims 10-23. In accordance with the newly instituted revised amendment format, new material to be added to the claims is shown as underlined, while material to be deleted is shown as ~~struck through~~.

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1. (Amended herein) A solution for the introduction and washout of vitrifiable concentrations of cryoprotectants in a cell, tissue or organ, comprising bicarbonate, mannitol and lactose.
  2. (Amended herein) The ~~A solution for the cryopreservation of living systems by vitrification comprising the solution of Claim 1 and further comprising~~ vitrifiable concentrations of cryoprotectant.
  3. (Amended herein) The solution of Claim 2 wherein said cryoprotectant comprises: dimethyl sulfoxide, formamide, and ethylene glycol.
  4. (Amended herein) The solution of Claim 2, wherein said cryoprotectant ~~further~~ comprises: polyvinyl alcohol or a copolymer of vinyl alcohol and vinyl acetate.
  5. (Cancelled herein)
  6. (Amended herein) The solution of Claim 2, wherein said cryoprotectant ~~further~~ comprises polyglycerol.
  7. (Amended herein) The solution of ~~e~~Claim 2 wherein said solution ~~cryoprotectant~~ comprises: ~~nonpenetrating components comprising the carrier solution or the carrier solution plus additional impermeants and wherein said~~ solution has a tonicity of nonpenetrating components total 1.2 to 1.5 times that of a solution that does not cause osmotic volume changes of said cell, tissue or organ is isotonic.
  8. (Amended herein) A method for the introduction and washout of vitrifiable concentrations of cryoprotectants in a cell, tissue or organ, comprising:

adding the solution of eClaim 1 or Claim 11 to said cell, tissue or organ; and

removing the solution from the cell, tissue or organ.

9. (Amended herein) A method for the cryopreservation of living systems by vitrification comprising:

adding a solution comprising bicarbonate, mannitol, lactose, and vitrifiable concentrations of cryoprotectant to said living system; and

cooling said living system to a desired temperature.

10. (New) The solution of Claim 1, further comprising glucose.

11. (New) A solution for the introduction and washout of vitrifiable concentrations of cryoprotectants in a cell, tissue or organ, comprising glucose, mannitol and lactose.

12. (New) The solution of Claim 11, further comprising one or more components selected from the group consisting of potassium phosphate, calcium chloride, magnesium chloride, reduced glutathione, potassium chloride, sodium bicarbonate, and adenine.

13. (New) The solution of Claim 11, comprising 90 mM glucose, 45 mM mannitol, 45 mM lactose, 7.2 mM potassium phosphate, 1 mM calcium chloride, 2 mM magnesium chloride, 5 mM reduced glutathione, 28.2 mM potassium chloride, 10 mM sodium bicarbonate, and 1 mM adenine.

14. (New) The solution of Claim 11, further comprising one or more cryoprotectants in an amount sufficient for vitrification of said cell, tissue, or organ.

15. (New) The solution of Claim 14, wherein said solution has a tonicity of between 1.1 to 2.0 times that of a solution that does not cause osmotic volume changes of said cell, tissue or organ.

16. (New) The solution of Claim 14 wherein said cryoprotectant comprises dimethyl sulfoxide, formamide, and ethylene glycol.

17. (New) The solution of Claim 14, wherein said cryoprotectant comprises polyvinyl alcohol or a copolymer of vinyl alcohol and vinyl acetate
18. (New) The solution of Claim 14, wherein said cryoprotectant comprises polyglycerol.
19. (New) A solution for the introduction and washout of vitrifiable concentrations of cryoprotectants in a cell, tissue or organ, comprising bicarbonate, mannitol, lactose, and one or more cryoprotectants in an amount sufficient for vitrification of an organ.
- 12 cont. 20. (New) A solution for the introduction and washout of vitrifiable concentrations of cryoprotectants in a cell, tissue or organ, comprising bicarbonate, mannitol, lactose, and polyvinyl alcohol or a copolymer of vinyl alcohol and vinyl acetate.
21. (New) A solution for the cryopreservation of living systems by vitrification comprising mannitol, lactose, and vitrifiable concentrations of cryoprotectant, wherein said cryoprotectant comprises polyglycerol.
22. (New) The solution of Claim 1, wherein said solution has a tonicity of between 1.1 to 2.0 times that of a solution that does not cause osmotic volume changes of said cell, tissue or organ.
23. (New) The solution of Claim 11, wherein said solution has a tonicity of between 1.1 to 2.0 times that of a solution that does not cause osmotic volume changes of said cell, tissue or organ.
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